

REMARKS

An excess claim fee payment letter is submitted herewith for three (3) excess total claims.

Claims 1-23 are all the claims presently pending in the application.

Claim 2 has been amended merely to make an editorial change in conformance with U.S. patent practice. New claims 18-23 have been added to claim additional features of the invention and to provide more varied protection for the invention. No new matter is added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sata (U.S. Patent No. 5,134,499), in view of Terasawa (U.S. Patent No. 5,832,173).

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the present application related art in view of Terasawa.

These rejections are respectfully traversed in the following discussion.

I. STATEMENT OF SUBSTANCE OF THE INTERVIEW

As a preliminary matter, Applicant's representative would like to thank Examiner Helen Shibru and Examiner Thai Tran for courtesies extended in the productive personal interview conducted on June 15, 2006. An Examiner's Interview Summary Record

(PTOL-413) was provided by the Examiner at the interview. Applicant submits this Statement to comply with the requirements of M.P.E.P. § 713.04.

Conduct of the Interview

In the interview, the amendments to the claims, new claims, and traversal positions submitted herewith were discussed.

Particularly, Applicant's representative pointed out the clear differences between the claimed invention and the Terawasa reference, which does not disclose or suggest a "*ring buffer monitor image signal generating part*", as claimed.

Applicant's representative noted that, in fact, Terawasa does not even disclose a ring buffer for reading and reproducing an image signal while writing an image signal supplied as time elapses into the ring buffer. Indeed, it was noted that Terawasa has nothing to do with reading and reproducing the video recorded on the video tape while writing an image signal supplied as time elapses. That is, Terawasa has nothing to do with a real-time method of monitoring a ring buffer.

Instead, Terawasa merely relates to the reproduction of video which has already been recorded and the searching of such recorded video. Particularly, in stark contrast to the claimed invention, Terasawa merely relates to a reproducing apparatus of a video tape recorder which determines a tape search status and facilitates conducting a search of previously recorded information (i.e., the record content) on the video tape (e.g., see Terasawa at Abstract; see also column 1, lines 12-16, column 2, lines 25-29).

Results of the Interview

Agreement with respect to the claims was reached, as indicated in the Examiner's Interview Summary dated June 15, 2006.

Particularly, the Examiner kindly agreed that Terasawa does not teach or suggest the claimed features for which the Examiner was relying upon Terasawa in the rejections. Thus, the Examiner stated that the present rejections based on Terasawa should be overcome.

The Examiner agreed to reconsider the rejections in response to the Amendment. The Examiner noted that further search and consideration would be necessary before making a final determination on the patentability of the claims.

Applicant's detailed remarks on the present Office Action, as discussed in the interview, are set forth below.

II. THE CLAIMED INVENTION

The present invention generally relates to a method and apparatus for recording and reproducing information with a ring buffer for recording and reproducing image signals by using its area circularly.

In conventional apparatuses, such as hard disk recorders, broadcast programs of different bit rates such as HDTV (High Definition Television) broadcast programs of high picture quality and SDTV (Standard Definition Television) broadcast programs of a standard picture quality exist mixedly. Therefore, while the HDTV broadcast program of the high bit rate is being recorded, if the SDTV broadcast program of the low bit rate is reproduced in a state where the write position WP and the read position RP are close to each other as shown in Fig. 1, a state where the WP outruns the RP occurs. If the write position WP outruns the read position RP, then contents of the SDTV broadcast program which have not been reproduced yet will be halfway overwritten by the contents of the HDTV broadcast program. In the time shift reproduction, however, the user cannot

previously know the occurrence of the outrunning state as mentioned above (e.g., see specification at page 2, lines 23-27, and page 3, lines 1-12).

The claimed invention, on the other hand, provides an information recording and reproducing apparatus with a ring buffer in which the user can know the state of the ring buffer in real-time and a method of monitoring the ring buffer (e.g., see specification at page 3, lines 14-19).

For example, independent claim 1 exemplarily defines an information recording and reproducing apparatus with a ring buffer for reading and reproducing an image signal recorded in the ring buffer while writing an image signal supplied as time elapses into the ring buffer, including a recording and reproducing position information obtaining part for obtaining information indicative of each of a recording position and a reproducing position at a present time point in the ring buffer, and a ring buffer monitor image signal generating part for generating a ring buffer monitor image signal indicative of an image showing a relative positional relation of each of the recording position and the reproducing position in the ring buffer.

On the other hand, independent claim 9 exemplarily defines an information recording and reproducing apparatus with a ring buffer for reading and reproducing an image signal recorded in the ring buffer while writing an image signal supplied as time elapses into the ring buffer, including a recording and reproducing position information obtaining part for obtaining information indicative of each of a recording position and a reproducing position at a present time point in the ring buffer, and a ring buffer monitor image signal generating part for generating a ring buffer monitor image signal for allowing a recording position mark to be displayed at a position corresponding to the recording position on a peripheral area of a screen of a display device and allowing a

reproducing position mark to be displayed at a position corresponding to the reproducing position on the peripheral area, respectively.

On the other hand, independent claim 10 exemplarily defines a monitoring method of a ring buffer in an information recording and reproducing apparatus with the ring buffer for reading and reproducing an image signal recorded in the ring buffer while writing an image signal supplied as time elapses into the ring buffer, including a ring buffer monitor image signal generating step of generating a ring buffer monitor image signal indicative of an image showing a relative positional relation of each of a recording position and a reproducing position at a present time point in the ring buffer, an image synthesizing step of obtaining a synthesis image signal by synthesizing the image signal reproduced from the ring buffer and the ring buffer monitor image signal, and a display step of displaying on the basis of the synthesis image signal.

Independent claim 17 exemplarily defines a monitoring method of a ring buffer in an information recording and reproducing apparatus with a ring buffer for reading and reproducing an image signal recorded in the ring buffer while writing an image signal supplied as time elapses into the ring buffer, including a recording and reproducing position information obtaining step of obtaining information indicative of each of a recording position and a reproducing position at a present time point in the ring buffer, a ring buffer monitor image signal generating step of generating a ring buffer monitor image signal for allowing a recording position mark to be displayed at a position corresponding to the recording position on a peripheral area of a screen of a display device and allowing a reproducing position mark to be displayed at a position corresponding to the reproducing position on the peripheral area, respectively, an image synthesizing step of obtaining a synthesis image signal by synthesizing the image signal

reproduced from the ring buffer and the ring buffer monitor image signal, and a display step of displaying on the basis of the synthesis image signal.

III. THE PRIOR ART REJECTIONS

A. Claims 1-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sata and Terasawa. The Examiner alleges that the combination of Sata and Terasawa discloses or suggests all of the features of the claimed invention.

Applicant submits that the ordinarily skilled artisan would not have been motivated to modify the device of Sata based on the device of Terasawa in the manner alleged by the Examiner, in order to arrive at the claimed invention. However, even assuming *arguendo* that the ordinarily skilled artisan would have been motivated to combine Sata and Terasawa in the manner alleged by the Examiner, Applicant respectfully submits that there are features of the claimed invention which clearly are not disclosed or suggested by Sata and Terasawa, either individually or in combination.

Therefore, Applicant traverses this rejection for at least the following reasons.

Sata

Sata relates a video recording apparatus used for a television system which writes video information on a track formed on a recording medium in a writing direction which directs from a predetermined start position to a predetermined end position of track by use of a head. Thereafter, the video information is read from a desirable designated position of the track in the writing direction. Sata discloses that the read video information is reproduced and then its corresponding pictures are displayed on a display unit of the television system.

Sata discloses that the video information can be continuously obtained. Sata discloses that the recording medium is constructed by an optical disk or a magneto-optical disk, and that the memory is constructed by a semiconductor memory such as a random-access memory (RAM), and the predetermined start and end positions are innermost side and outermost side of the track.

The Examiner acknowledges that Sata does not disclose or suggest a ring buffer monitor image signal generating part, as claimed.

Terasawa

The Examiner turns to Terasawa for the alleged teaching of a ring buffer monitor image signal generating part, as claimed. However, Applicant respectfully submits that the Examiner has mischaracterized the teachings of Terasawa, and therefore, traverses this rejection for several reasons.

First, Terawasa does not disclose or suggest a “*ring buffer monitor image signal generating part*”, as claimed. In fact, Terawasa does not even disclose a ring buffer for reading and reproducing an image signal while writing an image signal supplied as time elapses into the ring buffer. Indeed, Terawasa has nothing to do with reading and reproducing the video recorded on the video tape while writing an image signal supplied as time elapses. That is, Terawasa has nothing to do with a real-time method of monitoring a ring buffer.

Instead, Terawasa merely relates to the reproduction of video which has already been recorded and the searching of such recorded video. Indeed, the Examiner recognizes such a searching feature of Terawasa as the stated motivation for making the alleged combination.

Particularly, in stark contrast to the claimed invention, Terasawa merely relates to a reproducing apparatus of a video tape recorder which determines a tape search status and facilitates conducting a search of previously recorded information (i.e., the record content) on the video tape (e.g., see Terasawa at Abstract; see also column 1, lines 12-16, column 2, lines 25-29).

Terasawa discloses that a reproducible region is displayed on a graph, and a search marker and a reproducing position are indicated on the graph.

That is, Terasawa discloses graphically displaying the part of the video tape that can be reproduced (e.g., 120 minutes of recorded video or reproducing time; see Terasawa at column 6, lines 21-23) on a bar graph (e.g., a search bar) with the reproducing time shown below the bar graph (e.g., see Terasawa at column 7, lines 16-22). Also, the search control means 40 displays the current reproducing position and the search maker position by indicating a marker M and a lever L on the search bar (e.g., see Terasawa at column 7, lines 4-8 and 29-32). Again, Terawasa has nothing to do with a real-time method of monitoring a ring buffer.

Terawasa merely discloses that the speed of the reproducing mode is changed depending on the distance between the current reproducing position and the search marker position (i.e., the part of the video tape that the user wants to fast-forward or rewind to) so that the tape speed gradually decreases as the current reproducing position nears the search marker position (e.g., see Terawasa at column 8, lines 49-53, column 9, lines 4-22). Hence, Terawasa merely discloses a means for searching previously recorded video on a video tape by displaying a search position and a reproducing position.

Terawasa clearly does not, however, disclose or suggest generating an image showing a current recording position and a current reproducing position, as recited in the

claimed invention. That is, contrary to the claimed invention, Terawasa has nothing to do with a real-time method of monitoring a ring buffer.

Moreover, the teachings of Terawasa would not have motivated the ordinarily skilled artisan to modify the device of Sata to display such a current recording position and a current reproducing position, according to the claimed invention, since Terawasa has nothing to do with displaying the current (i.e., real-time) recording and reproducing positions. That is, Terawasa has nothing to do with reading and reproducing the video recorded on the video tape while writing an image signal supplied as time elapses.

Instead, as mentioned above, Terawasa merely relates to searching the previously recorded video.

Indeed, the Examiner's stated motivation for making such a combination is directed to visually recognizing the search status of the recorded information, not to generating an image signal indicative of an image showing a relative positional relation of each of the recording position and the reproducing position in the ring buffer. Thus, since the search feature forms the Examiner's basis for the combination, any combination of Sata and Terawasa necessarily would include the search status features of Terawasa, which clearly have nothing to do with the current recording position (i.e., the recording position at a present time point or real-time).

In comparison, independent claim 1 recites an information recording and reproducing apparatus with a ring buffer for reading and reproducing an image signal recorded in the ring buffer while writing an image signal supplied as time elapses into the ring buffer, including:

a recording and reproducing position information
obtaining part for obtaining information indicative of each of a

*recording position and a reproducing position at a present time point in said ring buffer; and
a ring buffer monitor image signal generating part for
generating a ring buffer monitor image signal indicative of an
image showing a relative positional relation of each of said
recording position and said reproducing position in said ring
buffer (emphasis added).*

Clearly, Terawasa does not disclose or suggest a part for generating a ring buffer monitor image signal indicative of an image showing a relative positional relation of each of the recording and reproducing position information at a present time point in the ring buffer, as recited in independent claims 1 and 9 (emphasis added).

Terawasa also does not disclose or suggest at least a method including an image synthesizing step of obtaining a synthesis image signal by synthesizing the image signal reproduced from the ring buffer and the ring buffer monitor image signal, which includes the relative positional relation of each of the recording and reproducing position information at a present time point in the ring buffer, as recited in independent claims 10 and 17.

For the foregoing reasons, even assuming *arguendo* that it would have been obvious to combine Sata and Terasawa in the manner alleged by the Examiner, the resulting combination of Sata and Terasawa clearly would not disclose or suggest all of the features of independent claims 1, 9, 10, and 17, respectively.

Dependent claims 2-8 and 11-16

With respect to dependent claims 2-8 and 11-16, Applicant submits that these claims are patentable over the prior art of record by virtue of their dependency from

independent claims 1 and 10, respectively, as well as for the additional features recited therein.

For example, Figure 4 of Terawasa is the only figure which illustrates the display screen. As clearly shown, Terawasa does not generate an image signal for allowing a current (i.e., real-time) recording position mark to be displayed at a position corresponding to the recording position on a peripheral area of a screen of a display device or for allowing a reproducing position mark to be displayed at a position corresponding to the reproducing position on the peripheral area, respectively.

Thus, Sata and Terawasa, either individually or in combination, clearly do not disclose or suggest all of the features of claims 3, 6, 11, 14, and 17, respectively.

Moreover, as mentioned above, Terawasa merely discloses that the speed of the reproducing mode is changed depending on the distance between the current reproducing position and the search marker position (i.e., the part of the video tape that the user wants to fast-forward or rewind to) so that the tape speed gradually decreases as the current reproducing position nears the search marker position (e.g., see Terawasa at column 8, lines 49-53, column 9, lines 4-22). However, the *recording* speed is not mentioned at all.

Thus, Terawasa clearly does not disclose or suggest a ring buffer monitor image signal generating part that changes a form of the recording position mark in accordance with a bit rate of the image signal to be recorded into the ring buffer.

Moreover, even assuming *arguendo* that Terawasa discloses a bit rate of the recording mark position or the reproducing mark position, Terawasa clearly does not disclose or suggest changing a form of the mark in accordance with a bit rate (i.e., changing a form of the reproducing position mark in accordance with a bit rate of the image signal reproduced from the ring buffer or changing a form of the recording position

mark in accordance with a bit rate of the image signal to be recorded into the ring buffer), as recited in claims 4 and 12.

Thus, Sata and Terasawa, either individually or in combination, clearly do not disclose or suggest all of the features of claims 4 and 12.

With respect to claim 5, the claimed invention recites that “*said ring buffer monitor image signal generating part changes a form of said reproducing position mark in accordance with a genre of a program based on said image signal reproduced from said ring buffer and changes a form of said recording position mark in accordance with a genre of a program based on said image signal to be recorded into said ring buffer*” (emphasis added).

However, in stark contrast to the claimed invention, Terawasa merely discloses that “the search control means 40 sequentially switches three kinds of icons ICO1, ICO2 and ICO3 different in the shape of tails in a loop manner, so that the user can visually understand that the magnetic tape is traveling” (see Terawasa at column 8, lines 63-67) and that “three kinds of icons which are different in tail shape are displayed circularly switching them, and this relieves boredom of the user” (see Terawasa at column 9, lines 47-49; emphasis added).

Hence, Terawasa clearly does not disclose or suggest changing a form of the reproducing and recording position marks in accordance with a genre of a program. In fact, Terawasa does not mention the term “*genre*” anywhere in the disclosure.

Thus, Sata and Terasawa, either individually or in combination, clearly do not disclose or suggest all of the features of claims 5 and 13.

For the foregoing reasons, Sata and Terasawa, either individually or in combination, do not disclose or suggest all of the features of the claimed invention.

Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 1-17 to pass to immediate allowance.

B. Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the present application's related art in view of Terasawa.

The Examiner alleges that the combination of the present application's related art and Terasawa discloses or suggests all of the features of the claimed invention.

Applicant submits that Terawasa does not make up for the acknowledged deficiencies of the present application's related art for the same reasons as set forth above.

Thus, even assuming *arguendo* that the ordinarily skilled artisan would have been motivated to combine the present application's related art and Terasawa, in the manner alleged by the Examiner, there are features of the claimed invention which clearly would not be disclosed or suggested by the present application's related art and Terasawa, either individually or in combination.

For the foregoing reasons, the present application's related art and Terasawa, either individually or in combination, do not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claim 1 to pass to immediate allowance.

IV. NEW CLAIMS

New claims 18-23 have been added to claim additional features of the invention.

Applicant submits that new claims 18-23 are patentable over the prior art of record for somewhat similar reasons as those set forth above, as well as for the additional features recited therein.

For example, the prior art of record clearly does not disclose or suggest, either individually or in combination, that the ring buffer monitor image signal generating circuit generates a ring buffer monitor image signal in order to allow the ring buffer monitor image based on the image data to be displayed at four sides of a screen of a display device and supplies it to the image synthesizing circuit (e.g., see specification at page 8, lines 17-21). Also, the prior art of record fails to disclose or suggest that, while the program received by the tuner or the program reproduced from the hard disk drive is being displayed onto the center portion of the screen, the display device displays the ring buffer monitor image for monitoring the state in the ring buffer area onto the peripheral portion of the screen (e.g., see specification at page 9, second paragraph).

Thus, the Examiner is requested to permit new claims 18-23 to pass to immediate allowance.

V. CONCLUSION

In view of the foregoing, Applicant submits that claims 1-23, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone

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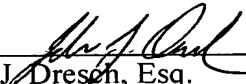
23

number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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